ADEM

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January 21, 1986

CERTIFIED MAIL P563838320
RETURN RECEIPT REQUESTED

Commander
Redstone Arsenal Supply Activity
Attention: DRSMI-K
Redstone Arsenal, AL 35898

Dear Sir:

Attention: DRSMI-KLC (Mr. Bill Schroder)

RE: Notice of Violation

A review of the Redstone Arsenal (RSA) groundwater monitoring program and resulting data has been conducted to determine compliance with the Alabama Water Pollution Control Act and the Solid Waste Disposal Act. This review was initiated as a result of EPA correspondence of October 2, 1985 classifying the DDT Landfill as a solid waste management unit, and the ADEM sampling results which have detected DDT, organic, and inorganic contamination in monitoring wells. This effort included an on-site inspection conducted on June 21, 1985 by Fred Mason, ADEM Geologist, with RSA representative Ron Hagler. A review of all groundwater monitoring data submitted to ADEM since 1981 was also conducted. The following items reflect the result of this review.

1. During the June 1985 inspection of the burning area it was observed that no groundwater monitoring wells were located around this facility. Liquids are poured on unprotected ground surfaces and disposed of by burning, with two (2) other unprotected pits used to burn solid wastes.

2. The groundwater monitoring system at the DDT Landfill has consistently detected low levels (<1 ug/l) of DDTR. A phase I assessment report was prepared in June 1984. This report evaluated migration potential in the shallow aquifer to be low. No bedrock wells have been installed in this area to determine if the Tuscumbia Limestone aquifer has been affected.

3. Four (4) monitoring wells are located on the southern boundaries of the sanitary landfill area. The attached table reflects data obtained from sampling and analysis of these wells. Data indicate that a contaminant plume has entered this shallow aquifer. This plume consists of volatile organic constituents, and high levels of iron and manganese. No effort has been made to define the vertical and horizontal extent of this plume.

4. The sampling and analysis program at RSA seems to be limited to DDT, Fe, Mn, pH, specific conductivity, occasional volatile scans, and indicator parameters for the DDT Landfill area when this area was regulated by RCRA.

The following recommendations are the result of this evaluation.

1. The disposal of volatile organic compounds by pouring on unprotected ground surface and burning has possibly resulted in groundwater contamination. Soil sampling, piezometer, and monitoring wells in the soil and bedrock should be installed and monitored for organic constituents, together with a minimum of four wells in the liquids burning area to monitor the shallow water table. Bedrock wells should also be required to define the vertical extent of contamination if organics are detected in the shallow groundwater.

2. Results of Army Environmental Hygiene Agency soils studies at the solid waste burning ground are requested for review by this office.

3. An additional set of monitoring wells should be installed around the DDT landfill to determine the horizontal extent of contamination. Deeper wells should also be installed.

4. An assessment of volatile organic contamination from the sanitary landfill area, oil disposal pits area, etc. should be conducted. Shallow and bedrock wells should be installed to define the vertical and horizontal extent of contamination.

5. A monitoring plan for RSA perimeter shallow and bedrock wells should be implemented for organic constituents.

6. The possibility of DDT mobilization with volatile organics should be investigated.

7. Remedial measures should be planned for contaminant plumes identified by these studies. Remedial measures should include the elimination of all unpermitted pollutant discharges to groundwater, and a clean-up of existing polluted groundwater. A schedule for the implementation of these studies and any remedial measures should be submitted to ADEM within 60 days of receipt of this notice.

Should you have any questions concerning this matter please contact Fred Mason at 205/271-7831.

Sincerely,

Charles R. Horn

Charles R. Horn
Acting Chief
Water Division

CRH/FCM/jd
Attachment

cc: Dan Cooper, ADEM
Jack Honeycutt, ADEM
Curt Johnson, ADEM
Fred Mason, ADEM

Groundwater Data from Redstone Arsenal
Sanitary Landfill Monitoring Wells

Reported Date	Compound	Well Number RSA 77	078	079	080	Lab
09/23/85	Fe mg/l	4.9		58.2	4.0	ADE
	Mn mg/l		.07	9.34	1.42	ADE
	1,2 Dichloroethene µg/l				79.9	ADE
	Trichloroethene ug/l				347.3	ADE
	Tetrachlorethene µg/l				35.4	ADE
08/08/85	Fe mg/l			57.1	3.83	RSA
08/08/85	Phenols mg/l	.02	.02	.02	.02	RSA
03/16/85	Fe mg/l		.45	112.0	5.6	RSA
03/16/85	Phenols mg/l	.02	.02	.27	.02	RSA
11/20/84	Phenols mg/l	.04	.04	.15	.04	ADE
	Fe mg/l			91.1	3.9	ADE
	Mn mg/l		.07	12.78	1.28	ADE
	Toluene ug/l			46.2		ADE
	Tetrahydrofuran			I		ADE
	2Butanone			I		ADE
	Trans-1,2-Dichloroethene ug/l				193	ADE
	Trichloroethylene ug/l				917	ADE
	Tetrachloroethylene ug/l				38	ADE
09/21/84	Fe mg/l			328	1.91	RSA
04/02/84	Fe mg/l			48.1	3.76	RSA
	Phenols mg/l			.11	.02	RSA
	DDTR ug/l		.123			RSA
10/07/83	Fe mg/l			545	.96	RSA
(SAMPLED 9/20/83)	Phenols mg/l			1.69	.02	RSA
	Methylene Chloride ug/l			38.0		RSA
	1,1 Dichloroethane ug/l			I		RSA
	Trans-1,2-Dichloroethene ug/l			110		RSA
	Chloroform ug/l			I		RSA
	1,2-Dichloroethane ug/l			14		RSA
	Benzene mg/l			13		RSA
	Toluene ug/l			170		RSA
	Ethyl Benzene			27		RSA
05/31/82	Phenols mg/l				.48	ADE
	Trans-1,2-Dichloroethane ug/l				76	ADE
	Trichloroethene ug/l				626	ADE
	Tetrachloroethene ug/l				21	ADE
	Fe mg/l				3.1	ADE
	Mn mg/l				.78	ADE
	COD mg/l			41		ADE
	Fe mg/l				126	ADE
	Mn mg/l				6.16	ADE
	Methylene Chloride ug/l			129		ADE
	1,1 Dichloroethane ug/l			54		ADE
	Trans-1,2-Dichloroethane ug/l			205		ADE
	1,2-Dichloropropane ug/l			21		ADE

Reported Date	Compound	RSA 77	Well Number 078	079	080	LA
05/31/82	Trichloroethene ug/l			41		ADI
	Tetrachloroethene ug/l			21		ADI
	Toluene ug/l			20		ADI
	Benzene ug/l			15		ADI
11/12/81	Fe mg/l	.9				ADI
	Nitrate as N mg/l		20			ADI
	COD mg/l		12			ADI
	Fe mg/l		1.4			ADI
	COD			21.6		ADI
	Fe mg/l			3.2		ADI
	Fe mg/l				1.5	ADI

I = Identified